North Carolina

Annual School Health Services Report

2011-2012

North Carolina Department
of Health and Human Services

Division of Public Health

Women's and Children's
Health Section

Children and Youth Branch

School Health Unit

Table of Contents

Executive Summary

The National Center for Education Statistics identifies North Carolina as the 10th largest state public school system in the country.[1] More than 1.4 million children were enrolled in North Carolina public schools during the 2011-2012 school year, an increase of 8,473 students from the previous school year. North Carolina's leaders in both education and health agree that health and education are interdependent; therefore the identification of health-related barriers to learning is crucial to the academic success of every student. By the beginning of school year 2005-2006, North Carolina had instituted comprehensive school health services in every school district. This goal became a priority of the N.C. Public Health Task Force. Subsequently, the state's Division of Public Health, the American Academy of Pediatrics, the Centers for Disease Control and Prevention (CDC), the American School Health Association and the National Association of School Nurses established a goal that every public school student in North Carolina have access to a school nurse in a ratio not to exceed one nurse per 750 students.

Over the years, the state has made comprehensive school health services a priority through strategies such as the N.C. Healthy Schools Coordinated School Health Program, the School Health Advisory Councils (SHACs), the N.C. School Health Leadership Assembly, and establishment of a School Health Cabinet at the highest levels of state government. Other strategies include the School Nurse Funding Initiative, the Child and Family Support Team initiative, and local funding directed toward school health services and personnel. Support for those efforts is provided through the Department of Public Instruction and the Department of Health and Human Services by designated staff members, including the state and regional school health nurse consultants, among others.

During the 2011-2012 school year, the number of full time school nurse positions increased slightly from the year before from 1173.5 to 1201.81 nurse positions. (See chart on page 9 for historical detail.)

School nurses in North Carolina are employed by a variety of agencies. Among the 115 LEAs (Local Education Agencies), almost three-quarters of the school health programs are administered by the school districts themselves. The remaining quarter of the programs are administered by local health departments, hospitals, or a combination of all three. Funding for school nurse positions is derived from a variety of sources including local and state funds, federal Title V block grant dollars, categorical funds, and public and private foundations.

Administrative Responsibility for School Nurses (source of management, supervision and payment, regardless of funding source)

LEA	81	70%
Health Department	16	14%
Hospital	3	3%
Health Alliance	2	2%
Combination	13	11%

The increase in the nurse full time equivalents of school nurses this past year ensured that, despite the increased student population, the school nurse ratio decreased slightly from 1:1201 in 2010-2011, to 1:1179 in 2011-2012. The ratio improved in 63% (73) of the LEAs and

[1] http://nces.ed.gov/datatools/index.asp?DataToolSectionID=4. (Accessed 9-19-11.)

worsened in 37% (42) of the LEAs. In August 1998, about 556 school nurses delivered services in 87 counties, and these nurses carried caseloads of about 2,450 students each. Over the past dozen years, the number of students in the average nurse's caseload has been cut by more than half, enabling more students to access health services from a school nurse.

The roles and the responsibilities of a school nurse are different from those of registered nurses working in other settings. Although principles of professional nursing remain consistent, the school nurse also must possess skills related to:

- A population-based focus on the entire school community, from students to staff to visitors to residents.
- Expertise in pediatric and adolescent growth and development.
- Knowledge and clinical expertise in the unique health issues of children and adolescents.
- Ability to identify academic difficulties that may be related to a health problem.
- Ability to problem-solve in order to accommodate a student's disabilities and health needs into the challenges of school.
- Knowledge of, and ability to, implement school nursing services in the federal and state programs designed for students with special needs (including both Individual Education Plans and Section 504 Disability Plans).
- Ability to put epidemiological principles into practice, including monitoring for clusters of symptoms that may indicate an emerging health threat for students and staff.
- Knowledge of research findings and emerging issues, to educate the school community and implement evidence-based practices.
- Skills in advocating for students and their parents to find common ground and reach agreement on accommodations to health problems.
- Leadership and confidence while negotiating a student's personal crisis or assisting school administration in a school's crisis.
- Ability to practice independently in a setting where he or she is usually the only health professional.
- Skill in fostering integration of the school nurse's role within the broader health care system in support of families and children.

Examples of school nurse activities include:

- Ensures compliance with school entry health requirements such as immunizations and physical exams.
- Provides care and nursing case management for students with chronic health problems.
- Monitors security and safe administration of medications.
- Assures the health and safety of the students and staff.
- Takes a lead role in managing disasters and planning for emergencies.
- Promotes student and staff wellness programs.
- Assures school compliance with state and local regulations related to health and safety.
- Identifies school health needs and advocates for necessary resources.
- Facilitates collaboration and coordination in student care between the school and the student's medical home provider.

National certification in school nursing is the standard by which school nurses are judged to have the knowledge and skills necessary to provide these health services. During 2011-2012, the number of nationally certified school nurses, as a percentage of the total number of school nurses in North Carolina, increased slightly, by 1 percentage point to 53 percent. North Carolina remains the state with the highest number of nationally certified school nurses in the country.[2]

The skills and knowledge that the school nurse brings to the school health activities can be measured partially by outcomes related to the dual goals of improving both a student's health and academic achievement. Data about these improved outcomes are described further under the heading "Student Health Outcomes," and specific examples are included throughout this report.

School nurses also provide general health education to staff and students; during the 2011-2012 school year, the nurses reported providing 24,253 programs and presentations:

- 50 LEAs (43%) presented asthma education programs for staff.
- 33 LEAs (29%) provided asthma education programs for students.
- 115 LEAs (100%) provided diabetes education programs for staff.

A critical function of school nurses is managing the care of students with chronic health conditions throughout the school day. During 2011-2012, the most common chronic health conditions of K-12 public school students in North Carolina, as reported by the nurses who care for them, included asthma (103,504), ADD/ADHD (66,157), severe allergies (28,999), and diabetes (4,803). As part of care management, school nurses develop individual health care plans and train school staff members to give necessary medications and safely perform nursing procedures delegated by the nurse to school staff. During the 2011-2012 school year, the state's school nurses developed 105,760 individual health plans for those students. More than half of those plans, 54,965, were for students with asthma. For each plan, the individual student's medical orders and individual needs were assessed, goals for student-management were written with the student, interventions were carried out, staff members were trained and the student's health status following treatment was evaluated.

Health counseling is defined as any encounter with a student where instruction and advice for health promotion, health improvement and health maintenance were discussed. During the 2011-2012 school year, school nurses provided 248,443 health counseling sessions to individual students and staff. School nurses facilitated health screenings conducted in schools. Over a half-million school children (513,844) were screened for vision, and 28,897 students were reported as seen by physicians or eye care professionals as a result of the referrals from school health professionals to obtain comprehensive eye exams.

Nurses received 115,722 physician orders for individual medications, including drugs ordered to be given regularly during each school day to specific students over the entire school year, drugs such as antibiotics or pain medication ordered daily but for short term use, as well as drugs ordered to be on hand should the student need them. Drugs ordered to be available included those for emergencies (e.g., diabetes, severe allergies, and intractable seizures) and those ordered for occasional headaches and other ailments. The school

[1] NCBSN, 2010. (A number of states require certification in school nursing through a state-designed program rather than through the national certificate.)

nurse reviews the orders prior to administering the medications, training non-health care school staff to administer them or, when specific conditions are met, assisting students to self-administer these medications. Review of the order by a Registered Nurse trained to identify the indications for use of a drug, its side effects and usual dosages and routes for it to be given, can reduce the incidence of medication errors. When an RN conducts an audit of records of medications given to students, the incidence of errors and risks of additional errors can be spotted and reduced quickly.

School nurses work with their local School Health Advisory Councils to develop and implement local programs designed to prevent illness and promote health. The SHACs are mandated by the North Carolina State Board of Education Healthy Active Children Policy (GCS-S-000). School nurses also assist with disaster and emergency planning for their communities. As the number and complexity of health needs of children in school continue to grow, so must the availability of school nurses until the recommended ratio of 1:750 is reached and, ideally, there is at least one school nurse in every school in North Carolina.

Methodology

This report is compiled from data submitted by school nurses based on their recording and knowledge of health services provided in their assigned schools. The survey instruments are completed locally based on their observations, and the information collected is not intended for use as surveillance or prevalence data. Data specialists and school health nurse consultants in the N.C. Division of Public Health's Children and Youth Branch developed the survey instrument. Each of the 115 LEAs (100 percent) participated in the data collection and submitted data onto the survey instrument electronically. These data address health services in North Carolina public schools, not including public charter and state residential schools. This report also does not include data from federal schools, such as those on military bases or in American Indian reservations or in private or parochial schools.

The data were collected and sorted by Children and Youth Branch staff and analyzed by staff in the School Health Unit and the Best Practices Unit.[3]

Additional data for this report were collected from other sources, including:

- North Carolina Department of Public Instruction;
- North Carolina Department of Health and Human Services, Division of Public Health, Women's and Children's Health Section;
- The National Society to Prevent Blindness North Carolina Affiliate, Inc., and
- North Carolina Child and Family Support Teams Initiative.

Additional data are available for further review by request.

Contact:

Ann Nichols, State School Health Nurse Consultant, Ann.Nichols@dhhs.nc.gov

Carol Tyson, School Health Unit Manager, Carol.Tyson@dhhs.nc.gov

[3] DATA SOURCES

N.C. Annual School Health Nursing Survey: Summary Report of School Nursing Services 2009-2010

N.C. Division of Public Health • Department of Health and Human Services

Public Schools of North Carolina • Department of Public Instruction

Introduction

The 2011-2012 report is the 16th edition of the North Carolina Annual School Health Services Report. For each school year since 1996-1997, the North Carolina Division of Public Health has summarized significant findings from the collected school health data from each school district. This report summarizes data for school health services as reported by school nurses during school year 2011-2012 and provides information on trends.

The survey of the school health service programs also asks for comments regarding outcomes and successes during the past school year and goals for future years. This report includes a small selection of the accounts of successful outcomes; they are labeled "local outcomes" and offer examples of potential solutions to some challenging student health issues.

Survey Population

Profile of Students Enrolled in North Carolina Public Schools

North Carolina's 1.4 million (1,417,657) school children are as diverse as the state's population.[4] They come from all socio-economic backgrounds and represent ethnic backgrounds from around the globe. A slim majority are male (51.2%) and white (52.4%). Other racial and ethnic populations in our schools are: Black or African American, 26.3%; Asian, 2.6%; Hispanic, 13.5%; American Indian, 1.4%; other, 3.7%. Students attend our 2,512 public schools in 115 educational districts (100 districts organized by county and 15 by city). An additional 44,477 students attend the 100 North Carolina public charter schools in operation in 2011-2012.

Exceptional Children

Intellectual, emotional and health impairments are among the disabilities that reduce a student's ability to learn. Nearly 12 percent of the state's public school children have disabilities that impact learning to such a degree that they are eligible to receive additional specialized instruction through the Exceptional Children's (EC) services. According to federal and state regulations, students with disabilities may be enrolled and receive appropriate educational services from ages 3 through 21. During the 2011-2012 school year, approximately 19,928 preschool students and 172,157 students ages 6-21 in grades kindergarten through 12th were enrolled in EC programs.[5] The incidence of EC enrollment peaks at around age 10; among students receiving EC services, one out of every ten is 10 years old.[6]

Students in the EC program often require the assistance of school nurses, as many of them have additional conditions beyond their primary disability that require health care plans, emergency action plans and other health accommodations. Most school nurses care for these students in addition to students in regular education. Fewer than 2 percent of school nurses are assigned to work exclusively in the EC program.

All students eligible for EC services must meet criteria for one primary disability from among 13 eligible categories, and may meet criteria for additional disability categories. Although "specific learning disability" was the most

[4] http://www.ncpublicschools.org/fbs/accounting/data/. (Accessed 10-3-12.) Does not include charter school or state residential school students.

[5] http://ec.ncpublicschools.gov/reports-data/child-count (ages 6-21). (Accessed 10-8-2011.)

[6] U.S. Department of Education, EDFacts (SY2010-2011), posted April 18, 2011. (Accessed Oct. 20, 2011.)

frequent classification (69,176 students) among students in EC programs in North Carolina, "other health impairment" was the second most frequent primary disability (32,506 students). The state EC program classified another 6,046 students with these health-related primary disabilities: "traumatic brain injured," "visual impairment," "hearing impaired," "orthopedically impaired" and "multiple disabilities." The school nurse is involved in planning and caring for the student with a chronic health condition, sometimes in direct care and other times in delegating, training and overseeing nursing care provided by other school staff.

School nurses often arrange for and provide general supervision of other nurses in the school setting. In 19 LEAs, private-duty nurses, including licensed practical nurses (LPNs), provided care to students who were medically fragile and needed care on a one-on-one basis during the entire school day. The LPNs worked under the supervision of a registered nurse as required by the N.C. Board of Nursing. LPNs may be hired by the school system or by an agency to provide direct care to an individual student who needs such a level of nursing care due to severe disabilities or due to such severe health conditions that the care cannot be provided by a teaching assistant.

LOCAL OUTCOME

If there isn't a nurse here I just call the parent to come and get the student if they complain of feeling sick or have a condition I'm unsure of. With a nurse here I can send the student for an evaluation, and the majority of the time the student will remain in school and not miss instructional time unnecessarily.

Pre-kindergarten (Pre-K) Students

The physical well-being of children when they enter school is one of five domains that lead to success in school, according to the N.C. Ready Schools Initiative. North Carolina state government and the federal government provide funding for students in pre-school programs to promote future success in school. In the public schools, those students enroll in More at Four Pre-Kindergarten programs, Title I Preschool, and Exceptional Children Preschool. The state's school nurses serve pre-K students to maximize their ability to be "healthy and ready to learn" at kindergarten entry, partnering with the community to provide health screening and health services to the children and their families. During the 2011-2012 school year, the school nurses reported serving 24,135 pre-K students. Many of these preschoolers have disabilities. Nearly half of the students enrolled in preschool, 19,928 students, are enrolled in Exceptional Children programs.[7] Although nearly half (47%) of these students are enrolled due to speech impairments or language delays and about 40 percent have developmental delays. The remaining 12 percent have disabilities ranging from autism (1,629, or 8%) to hearing, vision, orthopedic or other health impairments (totaling 727, or 3.6%). Another 194 students are classified as having multiple disabilities. The preschool student enrollment is not counted in this survey for purposes of the formula that results in the statewide school nurse-to-student ratio.

Profile of Nurses Employed in N.C. Public Schools

The school nurse is a registered nurse (RN) in a specialized professional practice that

[7] http://www.ncpublicschools.org/docs/ec/data/childcount/reports/december1/2010/osep004.pdf. (Accessed 9-27-2011.)

requires different educational preparation, experiences, skills and knowledge than that of nurses working in acute care or even other community settings. The American Academy of Pediatrics has affirmed that the school nurse has a crucial role in the seamless provision of comprehensive health services to children and youth.[8] The academy's position statement of May 2008 states that increasing numbers of students enter schools with chronic health conditions that require management during the school day. School nurses provide preventive services, early identification of problems, interventions and referrals that serve to improve health and educational outcomes. In North Carolina, the school nurse often functions as a member, and occasionally as the coordinator, of the local School Health Advisory Council. School nurses are involved in each of the eight components of a Coordinated School Health Program: health services, health education, physical education, nutrition services, health promotion for staff, counseling and psychological services, healthy school environment, and family/community involvement.

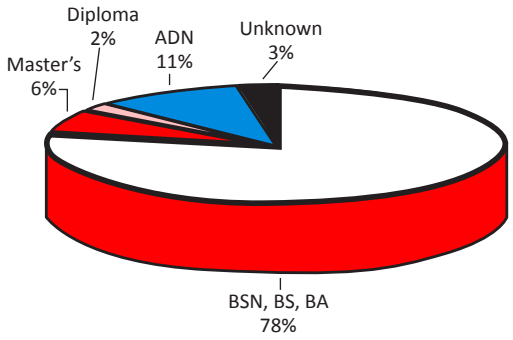
Educational Preparation of School Nurses

School nurses are registered nurses, licensed by the North Carolina Board of Nursing. Educational preparation for entry into registered nursing is through one of three routes: a bachelor's degree from a four-year college or university, an associate degree in nursing from a community college or technical college, or a diploma conferred by a hospital. Driven in part by recommendations of national leaders in school health, and in part by recommendations of state leaders and requirements of funding partners, the level of educational preparation of school nurses in North Carolina has increased steadily over the years. It increased again this year, with 85 percent of school nurses holding bachelor's degrees or higher during the 2011-2012 school year.

LOCAL OUTCOME

By serving as a team member on the school Student Care Team, our nurse serves a vital role for us in working with the school counselor, vice principal, psychologist, attendance counselor, and teacher.

Educational Preparation



B.S.N.—Bachelor of Science in Nursing
Diploma—Hospital Based Nursing Education
A.D.N.—Associate Degree in Nursing

In addition to the basic preparation of registered nurses through formal education, RNs are expected to learn additional aspects of their specialties through on-the-job and continuing education. Registered nurses who are new to the specialty of school nursing learn their new roles and responsibilities through continuing education provided by the N.C. Division of Public Health and its co-sponsors, as well as during orientation offered by their school district, health department or hospital

[8] American Academy of Pediatrics: Policy Statement "Role of the School Nurse in Providing School Health Services" May 2008.

employers. The N.C. Board of Nursing requires evidence of continuing education for the state's registered nurses to renew licensure. School nurses in North Carolina attend continuing education activities offered through the nine regional Area Health Education Centers (AHECs), through a number of colleges of nursing, and through the Public Health Nursing Professional Development (PHNPD) provider of continuing education, delivered through a network of state and regional nurse consultants within the N.C. Division of Public Health.

LOCAL OUTCOME

We implemented a community flu outreach through the schools and increased participation from the prior year by ten percent.

National School Nurse Certification

Since 1998, the N.C. Department of Public Instruction has required that all school nurses hired by local education agencies hold national school nurse certification. Non-certified nurses hired after this date may be employed but must achieve certification within three years of date of employment. School nurses not employed by LEAs are encouraged, and in some cases required, through their funding partners, to obtain certification as a mark of achieving this increasingly recognized standard. National certification requires RN licensure, a four-year degree, and a written exam that encompasses the full realm of school nursing, both from clinical and student educational perspectives. It is recommended that school nurses experience a full year in the practice of school nursing before attempting to take the certification examination. Currently, more than half (52%) of North Carolina nurses working in public schools hold national school nurse certification from one of the two national certifying bodies: the American Nurses Credentialing Center (ANCC) or the National Board for Certification of School Nurses (NBCSN).

As a rule, school nurses in North Carolina have a number of years of practice as a registered nurse in acute care and community health settings before entering the school nurse specialty. During the 2011-2012 school year, 74 percent had more than three years' experience in school nursing, in addition to prior years of professional practice.

Ratio of School Nurse to Students

The national recommendation for the school nurse-to-students ratio is 1:750 for students in the general population; 1:225 in the student populations requiring daily professional school nursing services or interventions; 1:125 in student populations with severe and profound disabilities and complex health care needs; and 1:1 for some individual students who require daily and continuous professional nursing services.[9] The aforementioned ratios would allow all students to have their health needs safely met while in the school setting, including appropriate preventive, health promotion, early identification and intervention services.

For this report, school nurse-to-students ratios were based on full-time equivalencies (FTEs of positions budgeted for school nurses[10]) to work in local education agencies. Registered nurses working solely as administrators, without caseloads of students, were not counted in the FTE or in the ratio. Using that definition,

[9] National Association of School Nurses, Position Statement, Caseload Assignments, Adopted 1972, Rev. 2010; See also CDC Healthy People 2010.

[10] FTE = Full Time Equivalency for school nurse positions (all full and part time hours divided by full time hours as defined by local school district).

there were 1201.81 FTE budgeted school nurse positions active during the 2011-2012 school year, 28.31 more than 2010-2011.

Each school district in North Carolina must have at least one registered nurse available to provide school health services, though only the most sparsely populated counties have only one. The number of schools assigned to each school nurse varies from one-to-ten with an average of two schools per nurse. The school nurse-to-students ratio also varies widely from LEA to LEA. At the end of the 2011-2012 school year, the statewide average ratio of school nurse-to-students was 1:1,179. Most LEAs showed improvement, and 42 LEAs met the target ratio of 1:750. The ratios ranged from 1:456 in Pamlico County to 1:3,650 in Davidson County Schools. For a breakdown of school nurse-to-students ratio by LEA, see Appendix C.

LOCAL OUTCOME

Upon hearing a principal asking a fifth grade student why she wasn't wearing her glasses, I discovered that the glasses were broken. The science End of Grade test was scheduled for the next day. I contacted the family and a local optician and helped them have her glasses in place in time for the test!

The following chart shows the yearly changes in the number of North Carolina public school nurses in the past five years. A relatively small number of school nurses are employed part-time.

Student Population, School Nurse Staffing, and Nurse-to-Students Ratios

Number of:	School Year 2007-2008	School Year 2008-2009	School Year 2009-2010	School Year 2010-2011	School Year 2011-2012
Schools* (in 115 Local Education Agencies	2,354	2,399	2,422	2,425	2,512
Students**	1,404,957	1,410,497	1,402,269	1,409,895	1,417,458
School Nurse FTEs	1,146.51	1,169.04	1,183.36	1173.50	1201.81
Average N.C. School Nurse/ Student Ratio	1:1,225	1:1,207	1:1,185	1:1,201	1:1,179
School Nurse Personnel (Individuals)	1,266	1,231	1,233	1,231	1,244

* Public Schools of North Carolina, "Facts and Figures 2011-2012", February 2012.

** NC DPI. Final ADM: http:// www.dpi.state.nc.us/docs/fbs/accounting/data/adm/ratio.xls posted 8-26-11. Retrieved 9/27/2011.

Employment and Financing of School Health Services

Employment

School nurses are primarily employed by their local education agencies. The administrative responsibility for 69 percent of school health service programs in North Carolina lies within the LEA. In 83 percent of the counties, either the school district (LEA) or health department hires, supervises, and manages the school health services program and staff. In five percent of the counties, the hospital provides those services, and in the remainder, there is more than one agency providing oversight and management of the school nurses.

Administrative agent	Percent of school districts (LEAs)*
Local Education Agency (LEA)	70%
Health Department	14%
Hospital/ Health Alliance	5%
Administration from a combination of agencies	11%

* rounded to the nearest percent

Funding

In any school health program, the funding may come from a variety of sources and be funneled to the agency with administrative responsibility over the program. Rarely is the entire school health services program funded through a sole source.

Funding sources include: local tax revenue, through property taxes allocated to the local school and local health department; N.C. General Assembly appropriations, such as through distributions from the Department of Public Instruction and Division of Public Health; federal reimbursement, including approved Medicaid expense reimbursements or federal Title V grants and categorical funds; hospitals; health care organizations and private foundations. The great majority of school nurses were funded through non-categorical funds provided to the local education system from the Department of Public Instruction. State categorical funds for school nurses provided financial support for 26.1 percent of the school nurses: Child and Family Support Team (CFST) program (79 positions, 6.5 percent of total funding); School Nurse Funding Initiative (SNFI) program (235.75 positions, 19.6 percent).

In recognition of both the enormous health needs of school-age children and the relationship between health and academic success, the General Assembly appropriated funds through the School Nurse Funding Initiative, beginning in the 2004-05 school year and additionally in each long session thereafter, in 2007 and 2009 and 2011. By the end of the 2011-2012 school year, the state had 235.75 full time school nurse positions allocated through the SNFI program. These funds are distributed by the N.C. Division of Public Health to local health departments, which may employ the nurses or may contract with local education agencies or hospitals to employ the school nurses.

In 2005, the Child and Family Support Teams Initiative was authorized and funded by the N.C. General Assembly. It has been reauthorized in the 2007, 2009 and 2011 state budgets. It is the state's only inter-departmental, school-based family-centered student support service system. Leadership for the CFST comes from the North Carolina Child and Family Leadership Council (NCCFLC). The NCCFLC is co-chaired by the Superintendent of Public Instruction (DPI) and the Secretary of the Department of Health

and Human Services (DHHS). Its other members include the Secretary of the Department of Juvenile Justice and Delinquency Prevention (DJJDP), Chairman of the State Board of Education (SBE) and the Director of the Administrative Office of the Courts (AOC).

The CFST initiative consists of 83 teams of school nurses and school social workers assigned to schools in 21 selected districts across the state. The initiative provides recurring funding for 79 of the teams, while 4 of them are funded through the utilization of flexible federal, state or local funds that have replaced allocations lost as a result of state budget reductions. The purpose of the CFST initiative is for school-based professionals: to identify students who are potentially at risk of academic failure or out-of-home placement due to physical, social, legal, emotional or developmental factors; to screen them for needed services; and then to provide family centered services to plan and manage appropriate interventions.

According to information provided by the CFST's evaluation team (Duke University's Center for Child and Family Policy) in the July 2012 CFST Legislative Report, the nurse-social worker teams identified 7,958 students as being potentially at risk of academic failure or out-of-home placement for the time period of July 1, 2010 through March 31, 2012. Administrative data from the fourth year of program implementation (2009-2010) did not indicate a statistically significant finding for end-of-grade scores. It did show that students missed fewer days following the reception of services through the CFST program, and that students in 3rd-8th grade who were referred by the CFST team to tutoring services experienced improved math and reading scores in the school year in which they received tutoring.

Through these state and local efforts to increase funding for school nurses, the number of LEAs meeting the recommended ratio of 1:750 has nearly quadrupled in the five years between the 2003-2004 and 2010-2011 school years. The labor demand for all nurses, including qualified school nurses, has grown rapidly in the past decade. At the same time, the complexity of student health needs has grown. School health program supervisors are highly successful in attracting and retaining school nurses. In the 2011-2012 school year, they succeeded in filling 99 percent of all school nurse positions. Only nine positions statewide were vacant for the majority of the school year.

School Health Services

School nurses provide basic and comprehensive school health interventions to all children in the population served, including children with special health care needs resulting from acute and chronic complex medical conditions.

Chronic Health Conditions

All children are eligible to attend public school and receive a free and appropriate education. A number of these children – about one of every six students attending school – have chronic health conditions. Since these conditions can affect attendance, school performance, and the students' physical and emotional level of well-being, school nurses work closely with students, their families, health care providers and school staff to reduce the negative impact of illness on learning. Nurses serve as case managers, evaluate activities of daily living, and develop appropriate modifications for the learning environment. The number of unduplicated individual students with chronic health conditions, as reported by the school nurses, was 232,183 in 2011-2012, approximately 16.4 percent of students. The number of reported individual chronic health conditions (with some students diagnosed with more than one condition) has risen almost every year for the past decade. The number and percent change of reported chronic health conditions are illustrated in the following table. The chart (Appendix A) lists all the conditions that were counted and also indicates the number of individual health plans written for each student with that condition, totaling 105,749 care plans.

Asthma, a major chronic illness among school children, is the leading cause of school absenteeism nationwide, according to national experts on lung disease. The number of North Carolina students known to school nurses to have asthma during 2011-2012 school year, was 105,542.

Severe allergies, such as peanut allergies or allergies to insect stings, are those for which a student carries or is provided medication at school. During the 2011-2012 school year, 30,008 students were listed as having severe allergies, 5,202 more than during school year 2010-2011.

There was a slight decline in the number of students reported with diabetes, to 4,803. School nurses provide care as well as train other staff to care for students with diabetes, who bring to school increasingly complex needs and high technology. The school nurse works with the student, family and physician to develop a diabetic care plan (individual health plan) and a nurse or a physician trains school personnel who are designated as

LOCAL OUTCOME

An eighth grade diabetic student had persistently high blood sugars in the 300-400 range. Her doctor had given up on her as being non-compliant. This past year I had meetings with her mom and daily intervention with her. I provided materials about diabetes based on her reading level, worked with her on the details of her care, consulted with her doctor and worked on helping her make a self-assessment of her needs and self-care. As a result she had blood sugars in the 200s all of second semester and learned life skills for long term management of her disease.

diabetic care managers. The General Assembly created the role of diabetic care manager in 2003 to assure consistent care for students with diabetes during the school day. Students with diabetes are also encouraged to self-manage their symptoms, which will most likely last their lifetime.

- Diabetes: Among the 4,803 students reported with diabetes 2011-2012:
  - 3,915 monitor blood glucose at school (with physician's order for procedure);
  - 2,239 receive insulin injections at school;
  - 1,698 manage insulin pumps; and
  - 2,778 are known to self-carry their medication (with appropriate authorizations).

Students in North Carolina public schools are not permitted to carry medications or to self-administer medications except for medications used to treat emergencies in students with asthma, severe allergies and/or diabetes. The option to self-carry and self-administer those medications continues to increase in popularity. This past year, 3,454 more students with asthma, 1,338 more students with severe allergies, and 1,077 more students with diabetes selected that option. The option comes with precautions to maintain safety and good health: 1) appropriate physician authorization to self-carry and self-administer; 2) parental authorization; and, 3) demonstration by the student to a registered nurse his or her ability to safely administer his or her own medication appropriately, and to understand when to seek assistance. Students who are not able to demonstrate that ability and understanding, or students who intentionally misuse the medications, may have that option temporarily suspended and instead receive those medications with supervision. Even students who are able to self-medicate for asthma, severe allergies or diabetes often still seek the help of a school nurse to assist them.

Medication	Number 10-11	Number 11-12	Percent self-carry compared to all diagnosed
Asthma inhalers known for self-carry	22,701	20,645	20%
Diabetes medication known for self-carry	3,681	2,778	77%
Epinephrine auto injectors known for self-carry	4,910	3,909	17% of students with severe allergies; 36% of students with orders for injectors

For a more extensive list of the types of chronic health conditions that were managed at school, see Appendix A.

Number of Individual Chronic Health Conditions[11] And Percent Change Per Year

School Year	Number and Percent
00-01	131,589
01-02	129,329 (–1.7%)
02-03	121,877 (-5.8%)
03-04	161,559 (+32.6)
04-05	197,052 (+22%)
05-06	209,718 (+6%)
06-07	227,940 (+8.7%)
07-08	237,245 (+4%)
08-09	240,528 (+1.4%)
09-10	265,479 (+10%)
10-11	292,288 (+10%)
11-12	305,912 (+21%)[12]

Diabetes – Compliance with State Law

In 2009, the General Assembly enacted additional requirements to the "Care of Students with Diabetes Act" (also known as SB 738, additional requirements to SB 911). At the request of the state Board of Education, the School Health Unit of DPH surveyed all public schools in North Carolina, including charter schools, with questions designed to assess compliance with the act. All public schools were asked these four questions concerning school year 2011-2012:

1. How many students with diabetes were enrolled in your LEA/charter school this past school year?
2. Does your LEA/charter school offer annual generalized diabetes training to school staff, system-wide?
3. Did your LEA/charter school have at least two persons who were intensively trained on diabetes care, in any school in which one or more students with diabetes were enrolled?
4. How many students with diabetes had an Individual Health Plan (IHP) completed by a school nurse or other health care provider in the past school year?

Public, non-charter school districts reported:

Number and percent of school districts with one or more students with diabetes	115 (100%)
Number of students with diabetes	4,803 (0.33% of enrolled students)
Offered annual generalized training about diabetes to school staff, system-wide, as required by the statute	110 (96%)
Students with diabetes who had an Individual Health Plan (IHP) completed by a school nurse (parent or student over age 18 may refuse an IHP)	3,990 (83% of students with diabetes)
In each school where one or more students with diabetes were enrolled, there were two or more persons intensively trained on diabetes care	114 (99%)

Although this publication of the school health services report does not otherwise contain information from charter schools, this section summarizes data provided by charter schools to these questions. Each of the public, charter school districts completed these questions and reported:

[11] Students may have more than one chronic health condition.

[12] Marked increase reflective of higher LEA response to survey question.

Charter schools reported:

Number and percent of charter schools with one or more students with diabetes	57 (57 percent of charter schools) (43 reported no students with diabetes.)
Number of students with diabetes	135 (0.3% of enrollment)
Offered annual generalized training about diabetes to school staff, system-wide, as required by the statute	43 (75% of the charter schools that had one or more students with diabetes)
Students with diabetes who had an Individual Health Plan (IHP) completed by a school nurse or other health care provider (parent or student over age 18 may refuse an IHP)	108 (80% of students with diabetes)
In each school where one or more students with diabetes were enrolled, there were two or more persons intensively	48 (84% of the charter schools with one or more students with diabetes)

LOCAL OUTCOME

Due to nursing case management of a student with a seizure disorder and a high absence rate from school I was able to help decrease the absences by 40% this school year.

Health Care Coordination and Case Management

The school nurse's role often extends beyond the school setting. Students with chronic or serious acute illnesses and conditions often require frequent daily nursing interventions and coordination of health care across a multitude of providers to enable them to remain in school. School nurses utilize a variety of strategies to communicate with all those involved in the care of a student. Nurses serve as liaisons with physicians, dentists, community agencies and families while supporting and caring for the health needs of students. Among the strategies school nurses enlist to provide health care coordination and case management is making visits to the homes of students. More than 11,187 home visits were conducted during the 2011-2012 school year to assist families with student health issues, to investigate chronic absenteeism, to review emergency action plans and other student health plans with parents and to visit home-bound students to plan for transition back to school.

Nursing case management has been found to be an evidence-based model for coordination of a student's health care. In 59 school districts, the process has been formalized into a case management program with core components of assessment, health care management, community resources and support, psychosocial intervention, and documentation and evaluation. During the 2011-2012 school year, coordination of care for a student with special health care needs produced outcomes that indicate increased ability by students to manage the condition in school, and students who receive case management services from a school nurse report positive health outcomes.

School nurse consultants made a concerted effort in the state to foster school nurse case management, even in schools without a formalized case management program. Those efforts led to reports of significant improvement in students' skills in improving their self-care, reducing their own exposures to allergens in order to reduce the need for emergency allergy medications, increasing their ability to participate in the entire school day, including physical education, and demonstrating other improvements in health and ability to manage their illnesses. Raw numbers of students receiving school nurse case management are tallied in the following table. The tables below demonstrate the positive outcomes of school nurses who provided case management of students:

LOCAL OUTCOME

I had a student this year with chronic bronchitis who is a smoker. After working with the student she is down to one to two cigarettes a day and decreased her absences by 60%. She did so well academically that she was exempt from exams.

Student Health Outcomes

School Nurse Case Management: Asthma Student Outcomes	**Number of students measured**	**Number of students who demonstrated improvement**	**Percent of students measured who demonstrated improvement**
1. Consistently verbalized an accurate knowledge of the pathophysiology of their condition	2,124	1,770	83%
2. Consistently demonstrated the correct use of asthma inhaler and/or spacer	2,328	2,062	89%
3. Accurately listed his/her asthma triggers	2,142	1,827	85%
4. Remained within acceptable peak flow/ pulse oximeter parameters according to care plan	506	395	78%
5. Improved amount and frequency of regular physical activity.	1,169	956	82%
6. Improved grades	810	600	74%
7. Decreased number of absences	1,168	941	81%

School Nurse Case Management: Diabetes Student Outcome	**Number of students measured**	**Number of students who demonstrated improvement**	**Percent of students measured who demonstrated improvement**
1. Consistently verbalized an accurate knowledge of the pathophysiology of their condition	904	737	82%
2. Consistently maintained normal blood sugar 90% or more of times checked	753	561	75%
3. Demonstrated improvement in the ability to correctly count carbohydrates	649	544	84%
4. Improved skill in testing own blood sugar.	816	738	90%
5. Showed improvement in HgA1C (if measured and available.)	285	226	79%
6. Calculated and delivered own dose of insulin 100% of the time	614	520	85%
7. Improved grades	442	328	74%
8. Decreased number of absences	582	426	73%

School Nurse Case Management: Weight Counseling Student Outcome	**Number of students measured**	**Number of students who demonstrated improvement**	**Percent of students measured who demonstrated improvement**
1.Consistently verbalized accurate knowledge of relationship of food and activity to weight	288	214	74%
2. Kept a daily food diary for at least 30 days and as needed	69	47	68%
3. Increased participation in PE, and maintained regular physical activity after school	177	151	85%
4. Consistently improved the ability to select appropriate portions and healthy food choices	279	206	74%
5. Improved overall grades	78	60	77%
6. Decreased number of absences	64	54	84%

Health Care Treatments and Procedures at School

Some students with chronic illnesses, physical handicaps and/or disabilities require health care procedures to be performed during the school day. The nurses reported processing orders for at least 34,625 individual medical treatments or procedures.

Specified Health Care Procedures

The chart that follows lists the number of medical orders for students for the listed treatments or procedures. In some, a medication is administered to treat a sudden emergency in a student with an underlying condition, and in others, such as administering a tube feeding, a nurse or a person to whom the nurse has delegated the nursing care performs a daily procedure. Among all the listed procedures, only the epinephrine may be used by the student without adult assistance.

Health Care Procedure	Total
Central venous line management	39
Diastat® administration	1,807
Glucagon injection	2,521
Nebulizer treatments	1,920
Shunt care	132
Tracheostomy suctioning & cleaning	110
Tube feeding	607
Administration of epinephrine (Epi-pen® and others)	13,575

For each of the listed procedures except nebulizer treatments, the numbers increased again from the previous year. For each of the procedures or treatments, an individual health plan, and in some cases also an emergency action plan, are often developed by the school nurse in collaboration with the family and physician.

Emergency Care

Injuries and illnesses are common occurrences in the school-aged population. Because the majority of school nurses cover more than one school building, few schools have a school nurse on duty every school day. Therefore, school nurses must assure that school personnel are trained to provide first aid in emergencies. Seventy-three percent (84 of 115) of the N.C. LEAs reported having staff identified as first responders available daily in each school building.

Currently, 109 LEAs reported having at least one AED (Automated External Defibrillator) on one or more school campuses. During 2011-2012, the AEDs were used eight times: three times for students, once for staff, and four times for visitors. Five of those eight victims of sudden cardiac arrhythmias survived; three of the events were fatal.

Many minor incidents occur to students and staff during the course of the school day and are often handled by teaching and office staff. School nurses are frequently required to assist with major injuries, of which there were more than 20,554 this past year, a decrease of 2,468. Serious injuries are defined as medical emergencies requiring an emergency medical service (EMS) call or immediate medical care plus the loss of one-half day or more of school.
Of the serious injuries reported, most occurred on the playground or school sports fields (29%) and in physical education (24%), and another 22 percent occurred in the classroom. For a complete breakdown of type and place of injury, refer to Appendix B.

Three students died from their school-related injuries this past school year. Those deaths resulted from head trauma, aspiration during seizure activity and automobile injury during off-campus lunch. Seven students were permanently disabled by their injuries, and

LOCAL OUTCOME

Through medication support and auditing we decreased the number of student missed doses by 50% and improved documentation.

those permanent disabilities included kidney damage, right arm weakness, thyroid laceration, and visual impairment due to a concussion. Nine hundred twenty-six (926) of the injuries resulted from an incident in which police (or resource officers) were called to respond or investigate.

The two students who died of football-related injuries during the fall of 2008 provided impetus for passage of the Gfeller-Waller Concussion Awareness Act. It made North Carolina the 21st state with a concussion law. The law, which took effect for the 2011-2012 school year, stipulates certain safety measures for high school and middle school sports.

Medications at School

Administration of medications to students by school staff is a serious responsibility, requiring conscientious attention to giving the correct medication in the correct dose to the correct student every time. Secretaries, classroom teachers, and teacher assistants are primarily the school staff members who administer routine medications on a daily basis in the majority of school systems in North Carolina. To ensure that school staff members perform this task with safety and accuracy, it is essential that a school nurse be available to review and participate in the development of school policy and procedures, train and supervise teachers and other staff about all aspects of giving medications correctly, and serve as coordinator among parents, medical providers, and the school. In nearly all of the LEAs, school nurses provided formal training programs for school employees who were designated to administer medications. They also conducted periodic audits of medication charts and records to assure compliance with all physician and parent orders and to assess the students' responses to medication therapy.

During the 2011-2012 school year, nurses reported that 28,509 medications were given daily to students while at school. Some students received medication daily on a long-term basis (22,213) for chronic conditions, and others for a shorter duration (6,296), such as to treat an infection or injury. Medications received most frequently on a daily basis included psychotropic controlled substances, including Ritalin®, Dexedrine®, and Lithium®.

During the 2011-2012 school year, 87,213 medications were ordered on an "as-needed basis." A physician order for a medication that is directed to be used "as needed" rather than regularly and routinely may mean that the student does not need that drug at all during any given school year. Students whose conditions are properly managed in school may never need such additional drugs or treatments. For example, an order for an Epi-pen® may not be needed if the student's allergens are avoided through directed staff and student education. A student whose daily anti-seizure medications are managing the condition may not have a prolonged seizure requiring Diastat. A student with diabetes whose blood sugar levels are frequently monitored and treated before they get dangerously low may not ever need a dose of Glucagon. Yet having the medication and physician order (and parent request) to provide medication should a situation arise is a necessary responsibility that school health nurses manage.

Medication	Number 2009-2010	Number 2010-2011	Number 2011-2012
Number of students on long term medications (more than 3 weeks)	20,322	19,954	22,213
Number of students on short term medications (less than 3 weeks)	9,207	8,060	6,296
Number of students on emergency, as needed, medications	51,412	51,511	59,666
Number of students on non-emergency, as needed, medications	32,265	34,879	27,547

The number of orders for non-emergency medications ordered PRN, or as needed, decreased slightly during the 2011-2012 school year, from 34,879 to 27,574. School nurses across the state, as well as physicians and other health care providers who can prescribe medications, carry out the recommendations of the American Academy of Pediatrics to limit school-dosed medications only to those absolutely necessary to maintain the student during the school day (American Academy of Pediatrics, October 2009, position statement).[13] Because a number of over-the-counter drugs can cause side effects or mask serious illnesses or conditions, state recommendations are to discourage unlimited use of non-prescription medications for school children and require not only parental authorization but also medical provider authorization for any medications given in school during the school day, whether or not a prescription is required for the product. Determining whether the student needs the medication involves interviewing the student, assessing the symptoms, and deciding on a course of action. In the school setting, such assessment and intervention is best handled by a registered nurse.

Without a nurse at every school, school nurses in North Carolina must delegate the administration of medication to other school personnel. The school nurse provides training and oversight to these non-health care professionals, also called "Unlicensed Assistive Personnel" (UAP), to handle those student medication situations. Most commonly, those persons are teachers, teaching assistants, coaches or school secretaries. School administrators also commonly administer medications. UAP may continue to need school nurse direction, such as when a medication is ordered with parameters, such as providing "one or two pain relievers depending on pain level," or providing two types of allergy medications depending on relief obtained by the primary medication.

Administration of epinephrine

Epi-Pen® is an auto-injection device that delivers a dose of epinephrine in order to treat severe allergies. Although the student may administer the medication to himself or herself, there is a statutory process requiring physician orders and nurse assessment of the student's ability to do so. Medical orders for Epi-Pens rose 21 percent during the 2011-2012 school year and have risen every year since the state instituted the law allowing school children to carry and self-administer this drug. Between 2007 and 2012, orders for epinephrine increased from 3,847 in 2007 to 13,575 by the end of the 2011-2012 school year. Even with state legislation allowing students to self-carry and self-inject

[13] American Academy of Pediatrics, Policy Statement, Guidance for the Administration of Medication in School, Adopted 2009.

epinephrine, only about 36 percent of the students with an order to have epinephrine available, and only 17 percent of all students with severe allergies, also had orders allowing self-administration of the drug. Self-carry legislation requires that physician and parent both find the student willing and especially able, both cognitively and physically, to know when and how to use the medication and to demonstrate this knowledge to school health staff before the emergency arises. Some students do not meet those conditions and in many cases, parents want adult management of their child's emergency situation, so in the majority of students with severe allergies, it has been agreed that it is safest to involve school staff.

Administration of Glucagon

Glucagon® is a medication administered by injection for a student with diabetes who is experiencing a dangerously low blood glucose level. Insulin, by contrast, is a drug used to treat elevated blood glucose levels. Of the two extremes, low blood glucose is the most immediately life-threatening and needs to be treated quickly to increase blood glucose in the diabetic student.

Administration of Diastat®

Diastat® is a drug with the generic name of diazepam, which is the active ingredient in Valium®, and is given through the rectum to treat an intractable (continuous) seizure.

Administration of Versed®

Versed is a form of anesthesia that some physicians prescribe for children with intractable seizures to be given through the inhalation route (nasal spray). The N.C. School Health Unit advises school districts to seek medical orders for a different drug other than Versed for school-day administration for a number of reasons, including the rare but extremely serious risk of depressing a student's respiratory status quickly, leading to respiratory arrest and death.

According to the National Library of Medicine (NLM), Versed, also known by its generic name of midazolam, is given to children before medical procedures or before anesthesia for surgery to cause drowsiness, relieve anxiety, and prevent memory of the event. It works by slowing activity in the brain to allow relaxation and sleep. Because potent inhaled anesthetics can cause patients to stop breathing, their use is recommended to physicians who are expert in the management of airway and breathing.[14] The NLM warns parents that the drug should only be given in a hospital or doctor's office that has the equipment that is needed to monitor heart and lungs and provide life-saving medical treatment quickly, with trained staff to closely monitor and respond. No public school outside of possibly the state's residential schools is equipped or staffed to provide that level of emergency respiratory treatment.

The high number of non-licensed school staff who had administered Versed during school year 2009-2010 led the state's school health nurse consultants to issue strong advisories to school nurses regarding requests to administer that drug and to seek alternative medication orders. That advisory from the state's school health nurse consultants led to a dramatic decrease in the number of times Versed was administered in N.C. public schools between those two years. The 2011-2012 surveys revealed zero instances of Versed administration in the school setting.

The following chart identifies how many times per year the following drugs were given in N.C. public schools during the past two years.

[14] http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0000482/.

2011-2012

Name of Medication	Medication 2010-2011	Medication 2011-2012
Diastat		
☐ Administered by licensed nurse	79	51
☐ Administered by non nurse	121	94
Glucagon		
☐ Administered by licensed nurse	7	2
☐ Administered by non nurse	12	3
Versed		
☐ Administered by licensed nurse	1	0
☐ Administered by non nurse	0	0

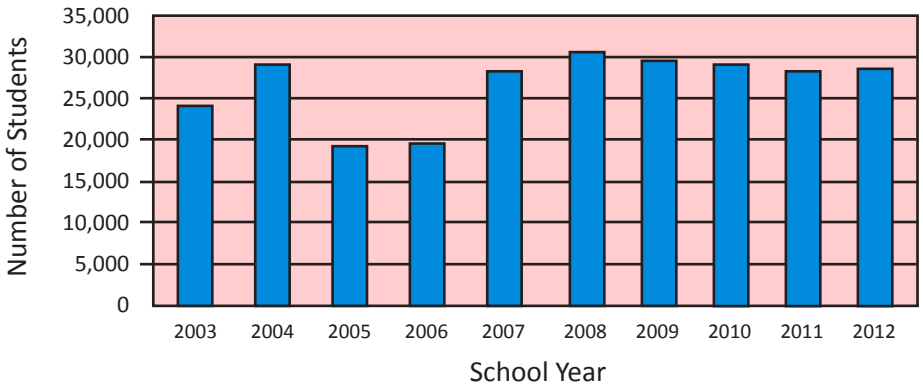
School nurses routinely audit the medication logs of students to assure that students are receiving their medications safely and accurately. Most frequently, these audits occur quarterly during the school year.

The following table and graph provide a 10-year overview of the numbers and percentage of students receiving medications as reported by school nurses. There is a notable decrease in numbers of daily medications during this decade, by nearly 50 percent, and an increase in those given intermittently for episodes or symptoms. This shift can be attributed to a change in dosage from short-acting to longer-acting formulas for a variety of conditions and to a rise in the numbers of medications for episodic conditions such as asthma, seizure, allergy, or chronic conditions that flare up. This change has held steady over the past few years.

Number and Percent of Students Receiving Medications Administered at School

School year	# Students	Daily Medications (% of all students)	Medications for Emergencies (% of all students)
2002-2003	1,279,468	24,477 (2%)	N/A
2003-2004	1,311,163	29,321 (2%)	N/A
2004-2005	1,332,009	19,541 (2%)	N/A
2005-2006	1,363,695	19,772 (1%)	N/A
2006-2007	1,386,363	27,990 (2%)	N/A
2007-2008	1,404,957	30,433 (2%)	39,985 (2.8%)
2008-2009	1,410,497	29,814 (2%)	49,456 (2.1%)
2009-2010	1,402,269	29,529 (2%)	51,412 (3.7%)
2010-2011	1,409,895	28,014 (2%)	86,390 (6.1%)
2011-2012	1,417,458	28,509 (2%)	87,213 (6.2%)

Number of Students Receiving Daily Medications at School



Health Counseling

Students seek a school nurse for accurate, confidential advice on issues ranging from normal growth and development to serious emotional and mental health concerns. They expect a registered nurse to provide medically-accurate and non-judgmental information related to their health and concerns. The chart that follows lists some of the health counseling provided by school nurses, defined as any encounter with a student where direct service, instruction and advice for health promotion, health improvement and health maintenance were discussed. During the 2011-2012 school year, the numbers of such encounters reported by school nurses totaled 248,443—15,785 more than the previous year's activities in this broad category. The single most frequent topic for school nurse counseling was asthma. Second most frequent was chronic illness and third was hygiene. The school nurse is frequently engaged in conversations with students about menstruation, hygiene, body odor, acne and other issues related to puberty. Students also confide in a school nurse about instances of violence or bullying, and over possible neglect or abuse within their family or their concerns over a friend or neighbor. School nurses must report suspicions of child abuse/neglect whether observed or given credible suspicion by another person. Students also sought the advice of school nurses about substance abuse and tobacco use. Individual discussions around depression/suicide occurred in all grade levels.

LOCAL OUTCOME

Through better support and monitoring of our two most complex asthma students, EMS was not called to school this year for either student. The previous year these two students experienced the need for a total of five calls for emergency issues at school.

Individual Health Counseling Sessions by Topic and Grade Level[15]

Health Counseling	Elementary School	Middle School	High School	Total
ADD/ADHD	9,880	5,304	2,642	17,826
Asthma	29,624	10,701	7,054	47,379
Child abuse/neglect	2,477	1,061	658	4,196
Chronic illness (not otherwise listed)	16,198	10,701	8,133	35,032
Depression (situational or chronic)	1,313	1,989	3,022	6,324
Diabetes	10,653	10,004	7,678	28,335
Hygiene	21,873	8,281	4,453	34,607
Mental Health Issues	5,330	4,063	6,504	15,897
Pregnancy	60	1,313	7,790	9,163
Puberty; reproductive health	3,774	4,332	7,600	15,706
Seizure disorders	2,581	1,556	1,752	5,889
Severe allergies	8,787	3,252	3,336	15,375
Sickle cell	343	296	266	905
Substance abuse including tobacco use, prescription abuse, etc.	471	1,555	2,710	4,736
Suicidal ideation	82	334	413	829
Violence/bullying	2,301	2,558	1,385	6,244
Totals	115,747	67,300	65,396	248,443

Pregnancy

For the fourth year in a row, there was a decrease in the number of pregnancies among public school students across all grade levels, as reported by the school nurses. Although routine prenatal care is not a school nurse function, some school nurses help manage a student's pregnancy as part of nursing case management or on physician orders, or may provide health education and health promotion through group teaching regarding care of the current pregnancy, anticipatory guidance of labor and delivery and infant care and instruction on avoidance of additional early pregnancies. The number of students reported by school nurses to be known to have been pregnant during 2011-2012 school year

LOCAL OUTCOME

We have tried to focus on successful return to school for our pregnant students. As a result, we have improved our post-delivery return to school and one student won academic end-of-year awards.

[15] Most but not all LEAs reported within these categories in the annual survey.

is 3,659. That number is 228 fewer than the previous year. This represents more than 1,245 fewer student pregnancies from the recent high of 4,904 during school year 2007-08. The latest figure represents a 25 percent decrease since 2008. This trend is also reflected in national statistics.

With assistance from school nurses, the majority of students managed their pregnancies well enough to remain enrolled in their normal school location. For about 28 percent of students, at some time during either the prenatal or postpartum period, or both, they received home-bound instruction instead of school-located instruction.

Status of School Enrollment for Students Known to be Pregnant

	Elementary	Middle School	High School	Total
Known pregnancies	2008-2009: 7 2009-2010: 3 2010-2011: 2 2011-2012: 1	2008-2009: 300 2009-2010: 278 2010-2011: 226 2011-2012: 183	2008-2009: 4,353 2009-2010: 3,996 2010-2011: 3,659 2011-2012: 3,475	2008-2009: 4,660 2009-2010: 4,277 2010-2011: 3,887 2011-2012: 3,659
Students receiving homebound instruction due to pregnancy 2011-2012	1	48	983	1,032

Known Pregnancies by Year and Percent Change from Previous Year

School Year	Pregnancies reported to school staff	% increase or decrease from previous year
2002-2003	2,697	- 7.6%
2003-2004	3,131	+ 16%
2004-2005	3,406	+ 9%
2005-2006	4,072	+ 20%
2006-2007	4,422	+ 9%
2007-2008	4,904	+ 11%
2008-2009	4,660	- 5%
2009-2010	4,277	- 8%
2010-2011	3,887	- 9%
2011-2012	3,659	-6%

Tobacco Use by Students

Since Aug. 1, 2008, all schools must adopt, implement, and enforce tobacco-free[16] school campus policies. In addition to state law and school policy, schools communicate tobacco-free messages to young people through health education programs, social marketing messages, cessation classes for students or staff, and through the day-to-day modeling and interactions among staff and students. In some LEAs, the school nurses offer classes and programs to reinforce restrictions against smoking and to encourage cessation and provide mentoring to youth groups advocating against tobacco use.

In a May 2012 press release the North Carolina Department of Health and Human Services announced that the teen cigarette smoking rate in North Carolina reached an historic low in 2011. Since 2003, teen cigarette smoking rates have fallen steadily, according to results from the 2011 N.C. Youth Tobacco Survey. The survey finds that the middle school smoking rate dropped to 4.2 percent from 4.3 percent in 2009, and high school smoking lowered to 15.5 percent from 16.7 percent in 2009[17]. These are all-time lows for each group. The TRU (Tobacco. Reality. Unfiltered) program, a prevention initiative that targets youth through media campaigns and school and community programs (**www.tru.nc.gov**), is credited with influencing teen tobacco use decline in North Carolina.

LOCAL OUTCOME

One of our school nurses started an after-school Endurance Club at our K-2 elementary school. Fourteen percent of the student enrollment joined and many participated in our city's annual walk/run event and ran a mile.

Suicide and Homicide

Intentional death of students, either through suicide or homicide, is a public health emergency. Although the number is small by comparison to the adult population, the loss of a student through homicide or suicide is a traumatic event for the entire community.

According to reports from the LEAs, suicide was reported to be attempted by 392 public school students, and 19 of those suicides resulted in death. Suicide cases decreased slightly, from 23 the previous year to 19 in 2011-2012. Twelve students died through homicide. One suicide death occurred at school. None of the deaths from homicide were reported as occurring at school.

[16] School policy totally prohibits tobacco use for all students, staff, and visitors in the school buildings and extends to the entire campus, vehicles, and all school events including outdoor events. The policy extends to hours after regular classroom schedules, 24-hours-a-day, seven-days-a-week and includes off-campus school sponsored student events.

[17] http://www.tobaccopreventionandcontrol.ncdhhs.gov/data/yts/yts11/2011YTSFactSheetPages1and2-051612-FINAL.pdf.

Death by Suicide/Homicide: School Year 2011-2012

	Elementary	Middle School	High School	Total
Suicide attempts by grade level	29	99	264	392
Deaths from suicide	1	3	15	19
Suicides occurring at school	0	0	1	1
Death from homicide	1	3	8	12
Homicides occurring at school	0	0	0	0

Health Teaching

School nurses were involved in a variety of health teaching and instructional sessions to groups and in classrooms. Classroom instruction included short presentations on such topics as hygiene, first aid, wellness and fitness promotion, Open Airways and other asthma management programs, AIDS peer education, smoking prevention and cessation, violence prevention, puberty, and prenatal and parenting programs. Instruction to faculty and staff included the topics of medication administration, infection control, OSHA blood-borne pathogen regulations, CPR, use of AEDs, first aid, and chronic disease management, including general training on the signs and symptoms and first aid for diabetes, and intensive training for the care of individual students with diabetes. The nurses also conducted health fairs and made presentations to parent organizations, school boards, and civic and community groups. School nurses reported providing a total of 24,235 programs and presentations during the 2011-2012 school year.

- 50 LEAs (43%) present asthma education programs for staff.
- 33 LEAs (29%) provide asthma education programs for students.
- 114 LEAs (99%) provide diabetes education programs for staff

Often, the school nurse is the first health care provider that the student sees for a specific problem. In some cases, the nurse is the only health care provider the student sees for minor illnesses and injuries. During the 2011-2012 school year, school nurses assessed and managed 166,103 students for illness or injury that originated at home. Issues such as the student's health insurance status, access to care, family economics or transportation contribute to the number of illnesses and injuries treated at school. In addition to providing care and guidance, nurses assist families by locating medical and dental resources and referring students to providers for the diagnosis and treatment of a wide variety of health problems.

LOCAL OUTCOME

Our nurses take a holistic approach with each student who is struggling in academics, attendance, home situations, medical needs, or whatever is causing a barrier to learning and succeeding. We feel that we see greater improvements as a result.

Health Screening, Referral, Follow-up, and Securing Care

Voluntary mass screenings by grade or school are often conducted with the assistance of trained volunteers or other health professionals.

Vision screenings are conducted by school nurses as well as by other school staff and volunteers. School nurses follow up on those referred for vision examination and in many cases are the persons who locate sources of low-cost or free care for those unable to afford treatment.

Significant numbers of students who were referred to a dentist or doctor based on the screening process did not or were not able to secure that care from a health professional. Additional staff to provide appropriate follow-up and care management services for students may reduce this gap in the completion of the screening process. In some situations, securing additional health care providers may also reduce the gap.

The following table lists the results of some of the mass screening projects that were conducted during the 2011-2012 school year.

LOCAL OUTCOME

Our school system has increased the awareness of the importance of good nutrition and physical exercise by participating in activities with our local Health Department, sending information home to parents, using posters in school that promote healthy eating, providing staff education regarding nutrition and physical exercise and enforcing our local wellness policy.

LOCAL OUTCOME

Our school nurses worked in conjunction with the physical education teacher and dietician at the local health department to closely monitor and trend students with high and low BMIs to devise goals and plans of care for their needs.

Number of Students Screened by School Health Services Staff

Screening	Screened	Referred	% Referred	Secured Care	% Secured Care
Body Mass Index (BMI)	57,273	3,659	6%	116	3%
Hearing	145,763	3,079	2%	2,048	67%%
Vision	513,884	39,999	8%	28,897	72%

The ultimate goal of any mass screening program is to assess the condition, and treat if indicated. One indicator of the success of a school health screening program is the percent who secured care, defined as: the number of students who did not pass a screening, were referred for further evaluation, and were evaluated by another health care provider who could diagnose and determine the appropriate way to treat the condition. Among the health conditions for which school nurses screened during the 2011-2012 school year, screening for vision achieved a 72 percent rate of successfully securing care, completing the screening process.

Screening for Obesity

North Carolina's children and youth are among the most overweight in the nation, with the state ranking 11th nationally for childhood obesity[18]. In North Carolina, nearly one-third of children aged 10 – 17 are overweight or obese. The N.C. General Assembly responded to what is called an epidemic of obesity in 2009 by creating the Legislative Task Force on Childhood Obesity. This task force conducted all-day meetings on topics related to obesity, including access to good nutrition and encouraging physical activity. Nearly all school districts have instituted programs to screen at least some students for overweight/obesity by measuring height and weight and obtaining the Body-Mass Index (BMI). Some of these programs are operated as part of the physical fitness measurements taken in physical education or wellness classes. Some school districts measure growth in height and weight but do not convert those figures to a BMI. These screenings are conducted in a variety of settings: health fairs, physical education classes, or routine collecting of height and weight data. In some cases, the screenings are conducted in collaboration with other health partners. Data from 2011-2012 are limited in that they do not distinguish between mass screening of all students or occasional screening of students referred for overweight, and they do not distinguish between referral for overweight or underweight. Some students with results indicating lower than expected growth in either height or weight may have been referred for medical evaluation. The percentage of public school students screened for BMI in North Carolina by the school health services staff is generally small, 6 percent of the total school population, and routine screening for BMI is not universally accepted as a school health services activity. During 2011-2012, 57,273 students were screened for BMI. About 6 percent of those students who were measured received referrals for either overweight or underweight. The referral rate of six percent is much lower than the expected 33 percent if the screening had encompassed the entire student population, but the sample of students screened was not representative of the entire student population due to the limited presence of formal screening programs for BMI in North Carolina schools. Three percent of those students identified as needing follow up were able to secure care, a very low rate of completing the screening process.

Vision Screening

There is no mandate in North Carolina for schools to routinely screen for vision, although rules and regulations exist related to screenings required for students needing additional academic support. Physicians and other health care providers who examine children prior to entry into kindergarten are required to screen for vision as part of that exam and to report those findings on the state-created Kindergarten Health Assessment (KHA) form.

[18] N.C. Legislative Task Force on Childhood Obesity, Dec. 13, 2010.

Many schools, however, follow state recommendations to screen all students periodically through elementary age and once more in middle or high school. Screening for vision is the most frequent school screening program in North Carolina. More than half a million North Carolina school children (36%) had their vision checked for possible eye problems. Training for that screening is offered by the Prevent Blindness North Carolina Vision (PBNC) Screening Certification Program, working under contract with the N.C. Division of Public Health in collaboration with the Children and Youth Branch to deliver vision screening certification training to all 100 counties. The PBNC program is the Division of Public Health's primary means of assuring consistent screening practices and referral criteria across all schools in North Carolina. Prevent Blindness is a non-profit organization dedicated to reducing the incidence and impact of vision deficits. The school vision screening program is an example of the highly collaborative intersections among school health professionals, non-profit organizations, volunteers and health care providers.

School nurses often coordinate the vision screening conducted in schools and report their results both to Prevent Blindness and to the Division of Public Health.

Hearing Screening

As with vision screening, there is no mandate in North Carolina for schools to routinely screen for hearing, although the same rules and regulations apply related to screenings required for students needing additional academic support. Physicians and other health care providers who examine children prior to entry into kindergarten are required to screen for hearing as part of that exam and to report those findings on the KHA form.

Not all school nurses are trained in and authorized to conduct hearing screenings. School nurses assist in hearing screenings, especially related to referrals and follow-up.

Health Policies

Policies are essential to guide the development and implementation of coordinated school health programs. All local health departments in the state develop an agreement, the Memorandum of Agreement (MOA), with each school district in their jurisdiction. These MOAs are locally developed and provide an avenue for collaboration on school and health policies and procedures.

School policies support school nursing practice, provide parents a consistent method of communicating those policies, and provide students and staff assurance of attention to health and safety. The School Health Unit of the Division of Public Health provides guidelines regarding policy development at the local level, and recommends, at minimum, that school boards study and develop written policies on the topics listed on the chart below.

The percentage column in the table that follows indicates the percent of LEAs that have written policies on those topics. An emerging policy addresses maintenance of electronic health records in school. The trend in the health care industry is greater reliance on electronic medical records (EMR) and electronic documentation of health care provided. This school year, 40 LEAs (35 percent) reported that the school nurses document at least some of the nursing care they provide onto computer systems.

School Health Policy	% of LEAs with written, board-approved policy
Prevention and control of communicable disease	100%
Provision of emergency care	100%
Screening, referral and follow-up	83%
Medication administration	59%
Identification of students with acute or chronic health care needs/conditions	81%
Maintenance of student health records	25%
Non-school bus transportation for students with health care needs	70%
Special health care services (State Board Policy GCS-G-006-.0402)	90%
Reporting student injuries	45%
Response to Do Not Resuscitate (DNR) order	27%

Community Involvement in School Health Services

Community involvement contributes to the quality and effectiveness of school health programs and services. School nurses encourage and promote community involvement through:

- Establishment of school health advisory councils;
- Development of inter-agency planning and written agreements;
- Recruitment of local physician advisors; and,
- Development of parent-teacher organization (PTA/PTO) health subcommittees.

The more visible activities reflecting school and community involvement include:

SHACs (School Health Advisory Councils);

Cooperative Agreements with Local Health Departments;

School Located Influenza Clinics; and,

School-Based School-Linked Health Centers (SBSLHC).

School Health Advisory Council (SHAC)

All of the local education agencies (LEAs) have School Health Advisory Councils. These multi-disciplinary councils are required by State Board of Education Policy #GCS-S-000. Nearly all of the SHACs have a school nurse among the council members (110 of 115) and 53 SHACs have a physician serving on the council. According to the policy, each SHAC must include representatives from physical education, health education, nutrition, school staff wellness, health services, mental/behavioral health, safe school environment, parents/community members, the local health department and school administration. The SHACs advise LEA leadership, superintendents, and local boards of education on health policies, programs and practices. The SHACs build collaborative trust and knowledge around health and academics, and can disseminate relevant information to the schools. There are currently 112 SHACs representing the 115 LEAS (three city LEAs have joint city/county SHACs).

Cooperative Agreements With Local Health Departments

In every county in the state, a Memorandum of Agreement between the local health department and the school district is required in order for the health department to receive state funds. These annually reviewed agreements outline the relationships and specific activities each agency will undertake to support the health of children in public schools. They delineate the responsibilities of each regarding epidemics and other community emergencies and the specific consultations that each will provide the other, while respecting student privacy. In addition to consultation with health department experts, 70 LEAs are able to consult with a physician regarding the school health program. Most (53 of the physicians, or 76%) who serve in that capacity are either family practice physicians or pediatricians.

School-Located Influenza Clinics

During school year 2011-2012, 26 percent of the school districts hosted school-located influenza clinics (SLIC). Influenza season in 2011-2012 experienced a more normal out-

break with no new (novel) strains present in any great numbers. In addition, during the previous year, there was a large source of federal funding that supported a Division of Public Health–led effort to implement SLIC. School nurses and administrators, in cooperation with state and local health departments, hospitals and others, made it possible for more than 10,923 doses of flu vaccine to be given to students and/or staff at school for protection against influenza. Parental permission was required to administer doses to students.

School-based, School-linked Health Centers

In about one fifth of the state's counties, coalitions of local health care providers have established school health centers in the schools using grants, local funding and some state funding assistance. During school year 2011-2012, there were at least 50 school-based or school-linked health centers operating in at least 20 counties.[20] The clinics primarily serve students in middle and high schools due to the significant need of adolescents for access to medical care, including care for mental health or behavioral health issues. Centers provide primary care and preventive clinical services during the school day, minimizing interruption of the student's time in class. These sites increase the school nurse's ability to refer a student or his family for medical care, especially in areas of low resources. The school-based or school-linked centers provide clinical health services and may bill for the services to the parent's insurance, other insurance providers and Medicaid. Parental permission is required for receipt of school health center services, including required and optional (recommended) immunizations, physical exams for sports, diagnosis and treatment for medical conditions, behavioral or mental health counseling and nutrition counseling.

Nurses employed by school-based health centers function similarly to those in a physician's office or clinic. Since they do not meet the definition of, nor provide the population-based functions of school nurses, these registered nurses working in the school health centers are not counted among the state's school nurse positions nor in the school nurse ratio.

School Health Centers depend on a combination of state funds, patient revenues, private foundation funds/donations and in-kind resources to support the health services that they provide. Twenty-six centers are partially funded by the N.C. Division of Public Health. These funds are used to leverage additional resources at the local level. Partners in these centers include N.C. Department of Public Instruction, N.C. Division of Medical Assistance, families, private medical practices, local health departments, universities and the N.C. School Community Health Alliance (NCSCHA).

Additional information on school based health centers may be obtained from the NCSCHA website, **www.ncscha.org**.

[20] http://www.ncscha.org/about.php - same citation for 2012.

Conclusion

School health services are just one component of a Coordinated School Health Program. By working with multiple partners in health and education, including the North Carolina Division of Public Health, North Carolina Division of Medical Assistance, North Carolina Department of Public Instruction, North Carolina Pediatric Society, North Carolina Academy of Family Physicians, North Carolina Dental Society, Prevent Blindness North Carolina, North Carolina School and Community Health Alliance and more, school nurses are working to help students achieve at levels they might not otherwise reach. An increase in the number of school nurses in North Carolina could positively impact overall student health and well-being, resulting in improved student attendance and academic outcomes.

Appendix A: Chronic Health Conditions, School Year 2011-12

Condition	Elementary	Middle	High	Total	Total with IHP for condition	Total with a related 504 plan
ADD/ADHD	35511	18501	13519	67531	3844	6009
Allergies (severe)	18117	5965	5926	30008	18865	380
Asthma	57718	25724	22100	105542	54965	823
Autistic disorders (ASD) including Asperger's Syndrome, PDD	6124	2290	2250	10664	1079	546
Blood disorders not listed elsewhere: (e.g. chronic anemia, Thalassemia)	624	316	442	1382	424	60
Cancer, including leukemia	428	189	263	880	335	141
Cardiac condition	2557	1277	1715	5549	1753	140
Cerebral Palsy	1287	545	702	2534	782	123
Chromosomal conditions not otherwise listed including Down's Syndrome, Fragile X, Trisomy 18	1397	518	610	2525	587	96
Chronic encopresis	501	111	72	684	226	17
Chronic infectious diseases: including Toxoplasmosis, Cytomegalovirus, Hepatitis B, Hepatitis C, HIV, Syphilis, Tuberculosis	82	37	68	187	35	6
Cystic Fibrosis	166	68	89	323	180	66
Diabetes Type I	1132	1060	1567	3759	5230	914
Diabetes Type II	218	350	618	1186	655	74
Eating Disorders (including anorexia, bulimia)	81	92	172	345	60	12
Emotional/behavior and/or psychiatric disorder not otherwise listed	5030	3438	3866	12334	778	817
Fetal Alcohol Syndrome	226	199	83	508	191	11
Gastrointestinal disorders (Crohn's, celiac disease, IBS, gluten intolerance, etc.)	2426	1418	1617	5461	1229	155
Hearing loss	2269	1015	1026	4310	561	344
Hemophilia	234	108	105	447	226	25

Condition	Elementary	Middle	High	Total	Total with IHP for condition	Total with a related 504 plan
Hydrocephalus	395	126	146	667	321	40
Hypertension	375	413	811	1599	399	17
Hypo/Hyperthyroidism	319	251	416	986	115	20
Metabolic conditions or endocrine disorders not otherwise listed	446	237	311	994	257	52
Migraine headaches	3038	3324	4570	10932	2349	146
Multiple Sclerosis	186	128	124	438	229	26
Muscular Dystrophy	99	56	72	227	77	20
Obesity (> 95th% BMI)	6145	1871	1881	9897	112	22
Orthopedic disability (permanent)	1216	719	851	2786	521	144
Other neurological condition not otherwise listed	647	238	392	1277	383	142
Other neuromuscular condition not otherwise listed	444	204	293	941	285	84
Renal / Adrenal / Kidney condition including Addison's	1192	635	747	2574	722	89
Rheumatological conditions (including Lupus, JRA)	311	227	361	899	374	82
Seizure Disorder/ Epilepsy	4674	2058	2351	9083	5352	401
Sickle Cell Anemia	814	376	385	1575	1334	85
Sickle Cell Trait (only)	892	378	395	1665	200	16
Spina Bifida (myelomeningocele)	258	85	137	480	208	42
Traumatic Brain Injury	215	130	186	531	173	66
Visually impaired (uncorrectable)	1107	446	649	2202	333	249
Total Number:	148994	70584	66384	285962	96768	11388

Appendix B: Reported Injuries in North Carolina Public Schools Requiring EMS Response or Immediate Care by Physician/ Dentist AND Loss of 1/2 Day or More of School, School Year 2011-12

Type of Injury	Bus	Hallway	Classroom	Playground	PE Class	Shop	Restroom	Lunchroom	Other	Total #	Total %
Abdominal/Internal Injuries	4	7	52	67	53	1	1	10	22	217	**1%**
Anaphylaxis	5	7	87	32	10	0	1	37	27	206	**1%**
Back or Neck Injuries	17	23	57	180	135	1	10	5	43	471	**2%**
Dental Injury	13	30	116	321	177	2	14	31	49	753	**4%**
Drug Overdose	16	15	98	5	5	2	8	7	37	193	**1%**
Eye Injuries	14	42	268	209	170	29	1	15	82	830	**4%**
Fracture	13	91	135	1240	718	12	17	24	447	2697	**13%**
Head Injuries	48	172	357	933	718	8	80	50	315	2681	**13%**
Heat Related Emergency	0	4	37	90	68	3	3	6	24	235	**1%**
Laceration	47	132	520	712	379	99	49	51	362	2351	**11%**
Other	34	119	531	393	298	9	32	63	376	1855	**9%**
Psychiatric Emergency	7	41	527	17	15	0	10	9	142	768	**4%**
Respiratory Emergency	9	27	583	214	202	1	10	18	332	1396	**7%**
Seizure	48	72	870	76	59	1	14	33	104	1277	**6%**
Sprain or Strain	76	270	316	1385	2025	18	35	68	431	4624	**22%**
Total #	351	1052	4554	5874	5032	186	285	427	2793	20554	**100%**
Total %	2%	5%	22%	29%	24%	1%	1%	2%	14%	100%	

Appendix C: North Carolina School Nurse-to-Student Ratio by Local Education Agency, School Year 2011-12

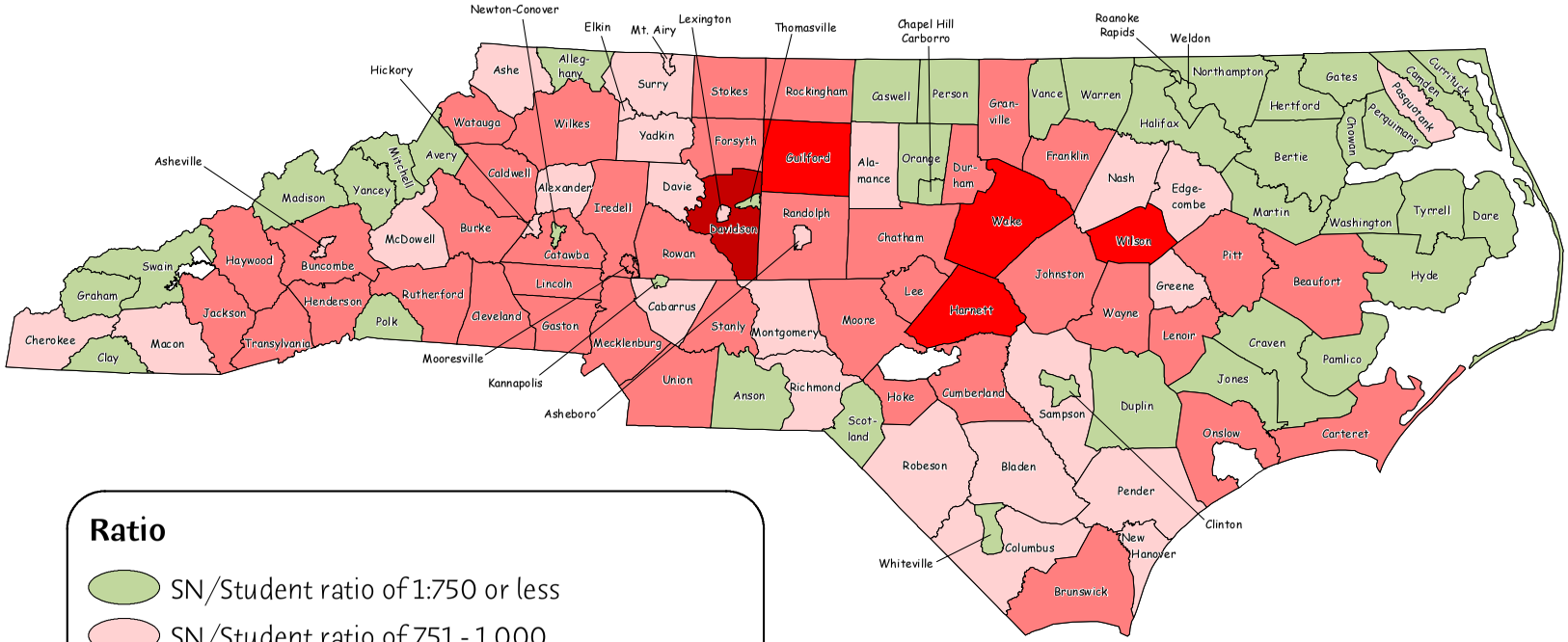
County/LEA Name	Ratio (Nurse:Student)	County/LEA Name	Ratio (Nurse:Student)
Alamance-Burlington Schools	902	Forsyth County Schools	1,815
Alexander County Schools	986	Franklin County Schools	1,105
Alleghany County Schools +	724	Gaston County Schools	1,471
Anson County Schools +	469	Gates County Schools +	601
Ashe County Schools	1,048	Graham County Schools +	496
Avery County Schools +	1,095	Granville County Schools	1,709
Beaufort County Schools	1,381	Greene County Schools	435
Bertie County Schools +	683	Guilford County Schools	2,249
Bladen County Schools	916	Halifax County Schools +	478
Brunswick County Schools	1,197	Roanoke Rapids City Schools +	724
Buncombe County Schools	1,425	Weldon City Schools +	512
Asheville City Schools	1,134	Harnett County Schools	1,847
Burke County Schools	1,208	Haywood County Schools	1,181
Cabarrus County Schools	921	Henderson County Schools	1,464
Kannapolis City Schools +	688	Hertford County Schools +	619
Caldwell County Schools	1,141	Hoke County Schools	1,002
Camden County Schools +	635	Hyde County Schools +	575
Carteret County Schools	1,204	Iredell-Statesville Schools	1,428
Caswell County Schools +	720	Mooresville City Schools	1,084
Catawba County Schools	1,139	Jackson County Schools	1,007
Hickory City Schools	848	Johnston County Schools	2,104
Newton Conover City Schools +	722	Jones County Schools +	569
Chatham County Schools	1,336	Lee County Schools	1,131
Cherokee County Schools	740	Lenoir County Schools	1,304
Edenton/Chowan Schools +	572	Lincoln County Schools	1,459
Clay County Schools +	664	Macon County Schools	854
Cleveland County Schools	1,123	Madison County Schools +	1,275
Columbus County Schools	916	Martin County Schools +	624
Whiteville City Schools +	566	McDowell County Schools +	753
Craven County Schools +	710	Charlotte-Mecklenburg Schools	1,159
Cumberland County Schools	2,054	Mitchell County Schools +	1,028
Currituck County Schools +	651	Montgomery County Schools	821
Dare County Schools +	482	Moore County Schools	1,768
Davidson County Schools	3,118	Nash-Rocky Mount Schools	869
Lexington City Schools	592	New Hanover County Schools	745
Thomasville City Schools +	803	Northampton County Schools +	582
Davie County Schools	927	Onslow County Schools	1,113
Duplin County Schools +	639	Orange County Schools +	629
Durham Public Schools	1,292	Chapel Hill-Carrboro Schools +	649
Edgecombe County Schools	1,013	Pamlico County Schools +	316

Appendix C: North Carolina School Nurse-to-Student Ratio by Local Education Agency, School Year 2011-12

County/LEA Name	Ratio (Nurse:Student)	County/LEA Name	Ratio (Nurse:Student)
Pasquotank County Schools	981	Surry County Schools	1,055
Pender County Schools	843	Elkin City Schools	769
Perquimans County Schools +	860	Mount Airy City Schools	536
Person County Schools +	985	Swain County Schools +	333
Pitt County Schools	1,276	Transylvania County Schools	1,170
Polk County Schools +	1,166	Tyrrell County Schools +	565
Randolph County Schools	2,041	Union County Schools	1,190
Asheboro City Schools	913	Vance County Schools +	687
Richmond County Schools	755	Wake County Schools	2,517
Robeson County Schools	1,013	Warren County Schools +	615
Rockingham County Schools	1,691	Washington County Schools +	583
Rowan-Salisbury Schools	1,677	Watauga County Schools	1,074
Rutherford County Schools	1,461	Wayne County Schools	1,111
Sampson County Schools	1,085	Wilkes County Schools	1,044
Clinton City Schools +	601	Wilson County Schools	2,006
Scotland County Schools +	473	Yadkin County Schools	968
Stanly County Schools	1,494	Yancey County Schools +	501
Stokes County Schools	1,369	**North Carolina**	1,179

+ School Districts that meet or exceed the recommended nurse to student ratio of 1:750

School Nurse/Student Ratio SFY 2011-2012



Ratio

- SN/Student ratio of 1:750 or less
- SN/Student ratio of 751 - 1,000
- SN/Student ratio of 1,001 - 2,000
- SN/Student ratio of 2,001 - 3,000
- SN/Student ratio of 3,001 - 3,650
- Not Eligible Federal and Military School Districts

Source: NC Annual Survey of School Health Services, NC DHHS

Note: The standard school nurse to student ratio of 1:750 has been adopted by the NC Public Health Task Force, NC Department of Public Instruction and the NC Division of Public Health and is based on recommendations made by the American Academy of Pediatrics, Centers for Disease Control and Prevention, and National Association of School Nurses.

schs
State Center for Health Statistics

NCPH
North Carolina Public Health

State of North Carolina | Pat McCrory, Governor
Department of Health and Human Services | Aldona Z. Wos, M.D., Secretary
Division of Public Health | Women's and Children's Health Section
Children and Youth Branch | School Health Unit
www.ncdhhs.gov

N.C. DHHS is an equal opportunity employer and provider.

10/13

This publication was supported by Cooperative Agreement Number 5U58DP001981-03 from Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.